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ABSTRACT

Focusing on some of the techniques classroom teachers are using to help students with reading comprehension, this report also highlights some of the research dealing with that area. The various articles in the report contain the following: a discussion of ways to teach inferential and critical reading skills; a discussion of "Research within Reach," a book built around the idea of taking questions educators frequently asked about reading instruction to a panel of reading researchers to produce the best answers research can offer; and suggestions for teaching techniques and strategies for teaching reading comprehension as described by experienced educators.
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READING COMPREHENSION

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RIGHT TO READ

READING COMPREHENSION

BRIEFLY...

"UNDERSTANDING THE MEANING of printed words" was the phrase psychologist Edward L. Thorndike used more than 50 years ago when he was asked, "What is reading?"

Drawing meaning from print is a central part of any definition of reading, and the problems associated with helping students derive meaning from what they read concern classroom teachers still.

This issue of *Reporting on Reading* looks at some of the techniques classroom teachers are using to help students grasp the meaning of printed materials and highlights some of the research dealing with teaching reading comprehension.

TEACHERS ASK, RESEARCHERS LISTEN

If you had a chance to pose your most troublesome questions about teaching reading to a panel of outstanding reading researchers, you would certainly pay attention to their replies.

Why? Partly because an opportunity to try to stump the experts happens so rarely. But more importantly, the questions you choose to ask would be of genuine concern to you.

A new book called *Research Within Reach: A Research-Guided Response to Concerns of Reading Educators**, by Phyllis Weaver with Fredi Shonkoff, is

See TEACHERS ASK, Page 6

COMPREHENSION SKILLS: THE QUESTION IS...



Robert L. Hillerich

Robert L. Hillerich, guest contributor to this issue of *Reporting on Reading* is a professor at Bowling Green State University, Bowling Green, Ohio. Professor Hillerich has written numerous articles on teaching reading and is the author of several reading series.

Teachers of reading are accustomed to classifying comprehension skills into three levels: literal, inferential, and critical reading. In plain English these three levels might be classed as understanding what the author said, understanding what the author meant, and evaluating, or reacting to, what the author said and meant. Or as Edgar Dale (1965) put it, reading the lines, reading between the lines, and reading beyond the lines.

According to the Education Commission of the States (1976), we're doing a better job now than we have done in the past with teaching decoding skills and literal comprehension; but we are not getting the job done when it comes to teaching inferential and critical reading skills.

Why Aren't We Getting the Job Done?

Much of the "teaching" of inferential and critical reading skills is done through questioning techniques.

COMPREHENSION SKILLS: (continued from page 1)

Yet teachers' questions tend to be overwhelmingly literal. In fact, typically, 75 percent of the questions teachers ask are literal, factual questions (Godbold, 1970; Lanier and Davis, 1972). Even if the teacher is guided in the discussion by questions suggested in basal readers, literal questions still make up about 50 percent of the questions asked (Cooke, 1970; Sweigert, 1972).

Several other factors also interfere with our teaching of the higher-level skills. How early can higher-level skills be taught? Evidence is clear that even critical reading skills can be taught at least as early as grade one, and that children taught early will read more critically than those who are not (Taba, 1965; Wolf et al., 1967).

Neither intelligence nor reading level delimits the children who can or cannot learn inferential or critical reading skills (Lanseigne-Case, 1967; Taba, 1965; Wolf et al., 1967). Here we've labored under a misconception, sometimes carried to the extreme of assigning the low reading group to literal skills, the middle group to inferential skills, and only the high group to critical reading. Even the poorest readers can learn some critical reading skills.

How can we improve our teaching of inferential and critical reading skills? I would like to make three suggestions: (1) we need to begin *teaching* these skills; (2) we need to improve our questioning; and (3) we need to clarify our objectives for the follow-up discussions.

The Need for Teaching

We can improve our teaching of inferential and critical reading by beginning to *teach* those skills. Too often we rely entirely on questioning. *Teaching*, especially in the

case of teaching more complex critical skills such as recognizing slant and bias or determining the validity of conclusions, includes explaining a skill, providing initial practice, reteaching when necessary, and finally demonstrating how the skill can be applied.

Even in the case of an inferential skill, to *teach* we need to raise the question and then to demonstrate to children *how* it can be answered. It is not enough to ask children to read a selection and then answer a question. Such a procedure merely provides *practice*. If we want to *teach*, we must take pupils back to the selection and ask, "How did you know?" "What words gave you clues that led you to this conclusion?" It is through this kind of demonstration and discussion that children begin to sharpen their reading skills.

The Need for Improved Questioning

If we are to move away from the literal level, we must take care not to be asking "Who?" "What?" "When?" "Where?" kinds of questions. Instead, the questions for inferential skills will be "Why do you think . . . ?" and "How did you know?"

Here are two simple "bootstrap" procedures that will enable you to improve your own questioning techniques.

One procedure is to have a student or students ask the questions. Since children tend to imitate the kinds of questions they've been asked, it will be a simple matter to determine if they have been accustomed to literal questions or if they are working at a more sophisticated level. Alternate questioning by teacher and pupils is also a technique that will increase pupils' depth of analysis and understanding (Heldfeldt and Lalik, 1976).

Another good procedure is to tape-record a class discussion that you lead. Then analyze the kinds of questions you asked, and consider the kinds that could have been asked to raise the discussion to the inferential and critical levels. Repeat this procedure several times and you will find that your questioning technique has improved considerably – or that you were already doing an excellent job.

In using that tape recorder, there's another facet of questioning to be aware of. Do you really want a well-thought-out answer, or do you merely want a few words to get each question over with? Bartolome (1969) found that teachers asked an average of sixty-nine questions in a typical thirty-minute lesson! Worse, Lucking (1975) reported that teachers asked 5.17 questions per minute, and, although adults take about fourteen seconds to begin answering a question, children were given only 5.6 seconds. In one study, teachers allowed two to three times as long for a bright child to answer as they allowed for a slow child. How much time do you allow for children to respond?

Reporting on Reading is a publication of the National Right to Read Effort. It is designed to present information on innovative and developmental reading projects and activities to teachers, administrators, and others who work with preschool, elementary, secondary, and adult populations.

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"I think the problem of children who merely say words without adequate understanding could largely be avoided if we would stop thinking of skills in decoding and comprehension as completely separate and instead would start thinking of them, and teaching them, as part of an interwoven process."

The Need for Clear Objectives

What is the purpose of your follow-up discussion? A survey on answers to this question (Pate and Bremer, 1967) indicated that sixty-eight percent of the teachers felt the purpose was to "check on effectiveness of teaching by checking on pupils' learning." What does this mean? Didn't the teachers trust their teaching skills? Didn't they trust the children to read all of the selection? Weren't they certain the children *could* read "all the words"? These researchers also found that only ten percent of the teachers asked questions at the inferential level. They further concluded that many of the teachers did not have an objective in mind for the discussion.

In a similar study, Bartolome (1969) found that, while teachers stated higher-level objectives, the practice was to reach higher-level skills in less than three percent of their questions.

If we are to improve our questioning, we ought first of all to have in mind the purpose of the follow-up discussion. Then we ought to adjust our behavior to fit that purpose. I'd like to suggest that the primary purpose of any discussion of literary materials with children ought to be to increase their enjoyment of that

material. A secondary purpose ought to be to range through some of the needed higher-level comprehension skills to practice them and, if need be, to reteach them.

If we focus on higher-level questions, there is no doubt that we will get better language and better thinking as a result (Allen, 1972; Ryan, 1973; Smith, 1974; Turner and Durrett, 1975; Wolf et al., 1967). Unless we strengthen our teaching of these higher-level skills, we are doing nothing more than raising "higher-level illiterates" (Bartolome, 1969).

Q

Professor Hillerich, some students seem to be able to decode beautifully but, when questioned, apparently understand little of what they've read. That raises the question of whether decoding ought to precede, follow, or go hand in hand with developing comprehension skills. What are your views?

Robert Hillerich: Reading comprehension skills are nothing more than thinking skills as they apply to reading. Obviously, you needn't wait until a child starts to read to begin to develop thinking skills, so in that sense, comprehension skills precede decoding. On the other hand, if you're talking specifically about reading comprehension, it's obvious that children aren't going to comprehend what they can't decode. Decoding and reading comprehension go hand in hand. I think the problem of children who merely say words without adequate understanding could largely be avoided if we would stop thinking of skills in decoding and comprehension as completely separate and instead would start thinking of them, and teaching them, as part of an interwoven process.

Q

What about the timing of questions? In your article you discuss the importance of asking questions after a student has had a chance to read something. How do you feel about posing questions before reading begins or even while reading is going on?

Hillerich: Here the research is mixed. I think I would have to say that it doesn't make a lot of difference whether you introduce questions before, after, or during the reading. It seems to me that a few questions before reading can be helpful, especially if the purpose of reading is to recall information. And that may well be the purpose in many of the content areas. But if the purpose of reading is enjoyment - sheer pleasure - then questions quite unintentionally may signal students to look for what the teacher says is important, not what is of interest to them. □

This article has been adapted for Reporting on Reading from an article that appeared in the April 1979 issue of the Ohio Reading Teacher. References are available from Reporting on Reading on request.



IT WORKS FOR ME

When it comes to teaching reading comprehension, some teachers play favorites. Over several years of teaching, many teachers have developed and refined some preferred ways of helping students improve their skills in reading comprehension.

Here is a sampling of some of the techniques and strategies of teaching reading comprehension described by experienced educators who were asked, "What is one of your favorite ways of teaching reading comprehension?"

The Retelling Technique

"Tell me everything you can remember about the story." That simple direction just after a student finishes reading is one way to find out how much students know about what they have read. But there is more, according to Yvonne Siu Steinruck of the Boulder Valley (Colorado) Public Schools, a proponent of the retelling technique.

When children stop or hesitate, ask for more. Say things like "Is there anything else you can remember?" "Go on." "What else happened?" Then after children finish telling all they can remember, follow with more specific questions, so they have a chance to expand or clarify what they said. Whenever appropriate, ask children to give reasons for their answers.

What is the greatest difficulty in using the retelling technique? Dr. Steinruck says the technique works best if teachers practice "judicious silence." "Teachers have to practice active listening. They have to wait patiently and quietly without interjecting a comment or a question. And that's more difficult than it sounds. Interruptions can destroy a student's train of thought, especially if a fresh question is asked while a student is still thinking about how to answer the teacher's last question."

Operation Rewrite

How is the second sentence like the first? (1) The weary traveler slept soundly on the none too steady bed. (2) The unwatered plant withered noticeably on the sunlit ledge.

Sentence two is a "rewrite" of sentence one. The nouns are different and so are the modifiers, but the syntax is the same—a noun is used where a noun appeared, modifiers replace modifiers.

Christine W. Lucas of McGill University, who developed this substitution technique, calls it "operation rewrite." She has used it successfully with secondary and junior college students who were having a dif-

ficult time learning to write.

"It's a technique that calls for a great deal of creativity on the part of the students," Dr. Lucas says. "Students are forced to try to understand how individual words fit together to produce meaning."

Dr. Lucas notes that teachers who systematically use rewriting as a part of their teaching may not have to teach grammar as a separate subject because students learn the rules of grammar by using them.

Children as Co-Authors

"As children realize that they can use their own experiences to add new meanings to words on a printed page, they really start thinking about what they're reading," says Glenda Lofton, elementary supervisor for the Louisiana State Department of Education and developer of a comprehension technique called "co-authoring."

Co-authoring is a technique based on the idea that children can learn to identify relationships inherent in language (Dinnan, J.A. and Lodge, R.A. *Communication: A Meta Theory of Language*) and then use those relationships to change or to add new ideas to something they have read (Torrance, E.P. *Encouraging Creativity in the Classroom*). "Children quickly learn that as soon as they see how an author uses language relationships, they can jump right in and extend or go beyond what the author said," Dr. Lofton says. "In that sense, children really become co-authors."

To use co-authoring to develop comprehension skills, children first read a selection and then are invited to ask "what if" questions about (1) matter—things that can be identified by the senses; (2) time—references that tell when something happened; (3) space—where an event occurred; and (4) amount—how much or how many. To teach children how these language relationships work, Dr. Lofton suggests starting with simple sentences. For example, in the sentence, "The dog barked at the man," children might ask, "What if 'dog' changed to 'Doberman'?"—a matter change. Time would change if the past tense changed to the year 2579; changing "the dog" to "fifty dogs" changes amount; or a spatial relationship could be introduced by putting the dog in a passing car.

Teaching children to identify the language relationships in a story takes a little practice, according to Dr. Lofton, but once they learn, she says, children can use these relationships to embellish what they read or to create entirely new stories.

Brain Pictures

"If you're interested in improving reading comprehension, encourage children to make pictures in their minds as they read," suggests Margaret Jensen, Title I coordinator at Sherman Elementary School in Madison, Wisconsin.

Once children get the idea that they can use their minds to make pictures of things, they can begin to practice making mental images or "brain pictures," as Ms. Jensen calls them.

Practice begins by inviting children to try to visualize a few specific things—a toy, a place they like, or a special happening. Then, in small groups, children can talk about their own brain pictures and listen to the descriptions of others.

After this introduction to visual imagery, children can begin to form mental pictures of stories they read or listen to. For example, before beginning to read a story, a teacher might ask children to "make pictures in their heads" as they listen to the words. As the reading continues, teachers can occasionally stop to pose questions, but not to seek answers. "If I read, for example, 'All along the meadow where the cows grazed,'" Ms. Jensen explains, "I might stop to ask 'What kinds of plants do you see growing in the meadow? and 'What color are they?' The questions are meant to give the children a little boost as they work to make their pictures."

In choosing materials to read to children, Ms. Jensen believes that, at first, those with less elaborate descriptions work best. A passage that mentions a door, for example, is better than one that describes an old wooden door with shiny brass hinges. "If the material you select to read is already rich in imagery, children will simply parrot the words you read when you ask them to describe what they see. And that's exactly what you don't want. You want them to describe *their own* images," Ms. Jensen says.

Guinness Guess

How large was the world's largest hamburger? With

some help from the *Guinness Book of World Records*, secondary school students are learning how to answer those kinds of questions while expanding their vocabulary in the process.

Nearly 1000 ninth-grade students in Indianapolis regularly played "Guinness Guess," a technique for teaching students how to use context clues to determine the meaning of words.

Guinness Guess was developed by teachers and staff of the Intensive Reading Lab, a secondary school reading program that emphasizes thinking strategies. The technique was developed because teachers found that direct instruction in using context clues to discover word meaning "got to be pretty dry and formal," according to Karin Saurini, project director. "We were teaching rules," Mrs. Saurini said, things like 'Look for a defining phrase next to a word you don't know.' But with this approach we found many students either didn't remember the rules or weren't interested in learning them."

To use Guinness Guess, teachers develop questions that can be answered by using the *Guinness Book of World Records*. Answers usually contain a word unfamiliar to most students—a word that requires them to make a reasonable guess about its meaning.

"The word 'circumference' pops up when students try to answer that question about the world's largest hamburger," Mrs. Saurini says. "And when I ask them, 'What tipped you off about the meaning of the word?' they can usually point to a couple of other words and say, 'Well, they're talking about how big around a hamburger is, so I figured that circumference meant the same as how big around.'"

According to Mrs. Saurini, Guinness Guess is a motivational way to get students involved in developing their own strategies for recognizing context clues. As an added benefit, teachers find that students do more than the reading required to answer a question. Mrs. Saurini noted, "Once they answer a question, many students start in on 'surreptitious reading'—a practice we do nothing to discourage." □



"If you're interested in improving reading comprehension, encourage children to make pictures in their minds as they read."

TEACHERS ASK, (continued from page 1)

built around the idea of taking questions frequently asked about reading instruction, by classroom teachers, reading specialists, curriculum coordinators, and school administrators, posing them to a panel of reading researchers, and then providing school people with the best answers research can currently offer.

Phyllis Weaver, principal author of *Research Within Reach* and a member of the panel of researchers who provided the answers, explains how the book differs from other reports or research summaries: "A strength of the publication is its shift in emphasis. That is, researchers generally conduct their work and speculate about how practitioners might incorporate the results into their teaching practices. We've taken a different approach. We asked the practitioners what they needed to know and then went to the research to find answers."

Many of the questions in *Research Within Reach* deal with how to improve students' reading comprehension ability. Here is a question about teaching comprehension and excerpts from the research panel's answer.

Nature of Reading Comprehension and Its Instruction

Teacher's question: I teach third grade students. My school district recently conducted several inservice workshops on reading instruction. The emphasis of these workshops was on reading comprehension, and we were urged to devote more of our reading instructional time to comprehension. Unfortunately, the suggestions for how to go about doing this are not very helpful. Except for using the comprehension activities in the manual of our basal series, I don't really think I know how to teach comprehension. What procedures are suggested for improving reading comprehension?

Researchers' answer: Educators usually agree that the outcome of reading should be comprehension. But how readers comprehend written materials is still largely a mystery. This is not surprising because comprehension is a mental activity that cannot be observed and studied directly. All that we can do is measure the effects of various kinds of instruction on comprehension; from analyses of the relationships between instruction and reading materials, on the one hand, and test performance, on the other, we can make inferences about the nature of comprehension processes.

Recently, researchers have been devoting tremendous effort to the study of comprehension. We hope



"How readers comprehend written materials is still largely a mystery...because comprehension is a mental activity that cannot be observed and studied directly."

that this research will yield a better understanding of the processes involved in comprehending and provide guidance for teaching and enhancing comprehension. At the present time a good deal of the research on comprehension is highly theoretical. It is difficult to draw instructional implications from this research. We expect that these research efforts will eventually yield valuable information that will enhance our knowledge about how to teach students to comprehend the materials they read.

However, some information is currently available on the nature of reading comprehension and its instruction that should be helpful in answering this third-grade teacher's question. While some of this information comes from research, a large portion comes from the opinions of reading experts. We report information from both sources in order to provide some guidance, admittedly brief, general, and speculative, for improving reading comprehension.

First, reading comprehension is not a unitary skill or ability. Instead, it appears to be the outcome of a number of component skills that are interrelated and interdependent. Consequently, identifying and providing instruction in these skills should improve performance on comprehension. What are these component skills?

Because comprehension depends a great deal on rapid, as well as accurate, word recognition, one possible way to improve reading comprehension is to be sure that word recognition skills are developed to the point where they are automatic - accurate, rapid and done without conscious attention.

Another important component of reading comprehension is vocabulary knowledge. Therefore, another possibility for improving comprehension is to expand students' vocabularies.

Recently there has been an increase in research on

the effects of prior knowledge and point of view on comprehension. In order to understand the things we read, we must have the appropriate background knowledge. For example, if we are reading a story about a child who takes a vacation at a beach resort, it is extremely helpful for understanding the story to know what a beach is, what a resort is, what people do at these places, and so on. Having a variety of experiences and learning about things (through stories, TV, records, friends, etc.) that cannot be or have not been experienced directly should enable students to understand better what they read.

Some researchers have suggested that the ability to perceive and use the organizational structure of sentences, paragraphs, stories, and so on, is a factor that affects reading comprehension. They are now investigating this aspect of reading comprehension, the effect of text organization and structure on memory and comprehension.

Although the set of skills listed above—word recognition, vocabulary, prior knowledge, and text organization—is not complete, we think that it includes the major components of reading comprehension. Helping students to become proficient at these components, giving them a lot of practice by having them read enjoyable materials, and directing their thinking by asking them questions about reading materials should result in good reading comprehension for most students. As a final note, although we list these skills serially, they should not be taught sequentially. Instead, we think they should be taught concurrently as part of a systematic program in reading. □

* Research Within Reach: A Research-Guided Response to Concerns of Reading Educators was produced as a part of CEMREL's Research and Development Interpretation Service Project, funded by the National Institute of Education. Copies are available from the International Reading Association, 800 Barksdale Road, P.O. Box 8139, Newark, Delaware 19711: \$4.50.

RESOURCES



In Plainer Words

Before you decide you would like to stay abreast of what the research in reading comprehension is saying, consider whether your time and persistence are up to your resolve. Allow plenty of time for reading because comprehension is now one of the most written about topics in all of reading. Persistence will also be needed to tackle terms borrowed from psycholinguistics or coined by a writer. To make staying informed a little less painful, William D. Page and Gay Su Pinnell have written *Teaching Reading Comprehension*. This book, commissioned by Educational Resources Information Center (ERIC) on Reading and Communications Skills, is meant to be a readable presentation of research findings in teaching reading comprehension. It has many illustrations and examples meant to help teachers become more skillful at teaching reading comprehension.

Available from the National Council of Teachers of English, 1111 Kenyon Road, Urbana, Illinois 61801; \$6.75.

Seeking Answers

"It took 50 years before Pasteur's work got out of the laboratory and into doctors' offices," ex-

plained Brenda J. Lerner, coordinator of school-community relations for the Center for the Study of Reading, a federally-funded center doing basic research in reading comprehension. "Here at the Center we hope it will not take us quite as long to get our work into classrooms, but solving difficult problems does take time. And understanding the development of reading comprehension certainly isn't easy." At the Center, located on the campus of the University of Illinois at Urbana-Champaign, researchers with backgrounds that range from psycholinguistics to computer science are trying to find answers to questions like, What kinds of problems do children have as they try to understand what they read? Does the way a child speaks affect his or her ability to draw meaning from text? Are things being done in elementary classrooms that may actually impede reading comprehension? Research findings on these and other questions related to reading comprehension are available in a series of more than 100 technical and reading education reports published by Center staff.

Publication list available from Center for the Study of Reading, University of Illinois at Urbana-Champaign, 174 Children's Research Center, 51 Gerty Drive, Champaign, Illinois 61820.

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